# RULE 906 AIRBORNE TOXIC CONTROL MEASURE
# MEDICAL WASTE INCINERATORS

Adopted 02-04-92

**CONTENTS**

This Page Intentionally Left Blank

## 100 GENERAL

**101 PURPOSE:** The purpose of this rule is to comply with Section 93104, Title 17, California Code of Regulations, for the control of the emission of Dioxins from medical waste incinerators and to establish minimum requirements for operation. Emission limitations are established for hydrochloric acid and particulate matter from medical waste incinerators.

**102 APPLICABILITY:** Any person who owns or operates a medical waste incinerator shall comply with the requirements of this Rule.

**103 EXEMPTION, CREMATORIA:** This control measure shall not apply to those incinerators which are exclusively crematoria of human or animal remains.

## 200 DEFINITIONS

**201 ARB:** means the State of California Air Resources Board.

**202 ARB TEST METHOD 1:** means the test method specified in Title 17, California Code of Regulations, Section 94101, Sample and Velocity Traverses for Stationary Sources.

**203 ARB TEST METHOD 2:** means the test method specified in Title 17, California Code of Regulations, Section 94102, Determination of Stack Gas Velocity and Volumetric Flow Rate.

**204 ARB TEST METHOD 3:** means the test method specified in Title 17, California Code of Regulations, Section 94103, Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight.

**205 ARB TEST METHOD 4:** means the test method specified in Title 17, California Code of Regulations, Section 94104, Determination of Moisture Content in Stack Gases.

**206 ARB TEST METHOD 5:** means the test method specified in Title 17, California Code of Regulations, Section 94105, Determination of Particulate Matter Emissions from Stationary Sources.

**207 ARB TEST METHOD 421:** means the test method specified in Title 17, California Code of Regulations, Section 94131, Determination of Hydrochloric Acid Emissions from Stationary Sources.

**208 ARB TEST METHOD 428:** means the test method specified in Title 17, California Code of Regulations, Section 94139, Determination of Polychlorinated Dibenzo-p-Dioxin (PCDD), Polychlorinated Dibenzofuran (PCDF), and Polychlorinated Biphenyl (PCB) Emissions from Stationary Sources.

**209 CONTROL EQUIPMENT:** means any device which reduces emissions from medical waste incinerators.

**210 DIOXINS:** means dibenzo-p-dioxins and dibenzofurans chlorinated in the 2, 3, 7, and 8 positions and containing 4, 5, 6, or 7 chlorine atoms and is expressed as 2, 3, 7, 8 tetrachlorinated dibenzo-para-dioxin equivalents using current California Department of Health Services toxic equivalency factors.

**211 DISTRICT:** means the Placer County Air Pollution Control District.

**212 EXCESS AIR:** means the air supplied in excess of that necessary to completely burn compounds.

**213 FACILITY:** means every building, structure, appurtenance, installation, or improvement located on land which is under the same or common ownership or operation, and is on one or more contiguous or adjacent properties.

**214 MEDICAL FACILITIES:** means medical and dental offices, clinics and hospitals, skilled nursing facilities, research facilities, research laboratories, clinical laboratories, all unlicensed and licensed medical facilities, clinics and hospitals, surgery centers, diagnostic laboratories, and other providers of health care. For the purposes of this Rule, medical facilities include providers of veterinary services.

**215 MEDICAL WASTE INCINERATOR:** means all of the furnaces or other closed fire chambers that are located at a facility and used to dispose of waste generated at medical facilities by burning.

**216 MULTIPLE CHAMBER STARVED AIR INCINERATOR:** or Controlled Air Incinerator, means an incinerator which is designed to burn waste in two independent chambers:

216.1 Primary Chamber: where the majority of waste volume reduction occurs operated at sub-stoichiometric conditions

216.2 Secondary Chamber: operates at excess air conditions; where destruction of gas-phase combustion products occurs. Passage ports, ducts, flues, chimneys, or stacks with burners shall not be considered Controlled Air secondary chambers unless the combustion zone exhibits design measures for the retention of the gas stream in the chamber, turbulence or mixing, and the availability of excess air, as determined by engineering analysis.

**217 STOICHIOMETRIC AIR:** means an amount of air (theoretical combustion air) theoretically required for the complete combustion of compounds with total depletion of oxygen.

**218 SUB-STOICHIOMETRIC AIR:** means an amount of air (theoretical combustion air) less than that required for the complete combustion of compounds.

**219 UNCONTROLLED EMISSIONS:** means the dioxins emissions measured from the incinerator at a location downstream of the last combustion chamber, but prior to the air pollution control equipment.

**220 WASTE:** means all discarded putrescible and nonputrescible solid, semisolid, and liquid materials, including garbage, trash, refuse, paper, rubbish, food, ashes, plastics, industrial wastes, demolition and construction wastes, equipment, instruments, utensils, appliances, manure, and human or animal solid and semi-solid wastes.

**221 WASTE CHARGING RATE:** means the amount of waste charged or fed into the incinerator per unit of time, usually expressed in terms of pounds per hour or kilograms per hour.

## 300 STANDARDS

**301 EMISSION LIMITATIONS:** No person shall operate a medical waste incinerator unless:

301.1 The dioxins emissions have been reduced to 10 nanograms or less per kilogram of waste burned.

301.2 Hydrochloric acid emissions do not exceed 30 ppmdv, corrected to 12% carbon dioxide ($CO_2$), for any 1 hour emission rate.

301.3 Particulate Matter emissions do not exceed 0.01 grains per dry cubic foot of gas at standard conditions, corrected to 12% carbon dioxide ($CO_2$). The concentration limit shall apply to filterable (front half) particulate matter measured using ARB Test Method 5.

**302 OPERATING REQUIREMENTS:** No person shall operate a medical waste incinerator unless the incinerator and the control equipment required to comply with the limitations of Section 301 are installed and used in a manner which has been demonstrated to and approved by the District Air Pollution Control Officer to meet the following requirements:

302.1 The flue gas temperature at the outlet of the control equipment, or the outlet of incinerator stack if no control equipment installed, shall not exceed 300 degrees Fahrenheit, unless it has been demonstrated to, and approved in writing by, both the ARB and the District Air Pollution Control Officer that lower emissions are achieved at a higher outlet temperature; and

302.2 For a single chamber incinerator, the combustion chamber shall be maintained at no less than 1800 degrees ($\pm$ 200 degrees) Fahrenheit. Single chamber medical waste incinerator not in operation on January 13, 1992 are prohibited.

302.3 For a multiple chamber starved air incinerator, the primary combustion chamber shall be maintained at no less than 1400 degrees Fahrenheit, and the secondary chamber shall be maintained at no less than 1800 degrees ($\pm$ 200 degrees) Fahrenheit. No waste shall be fed into the incinerator during start-up and shut-down unless the incinerator combustion chamber(s) are within the required temperature range.

302.4 The furnace design shall provide for a residence time for combustion gas of at least one second. Residence time shall be calculated using the following equation:

$$\text{Residence Time} = \frac{V}{Q_C}$$

Where:

$V$ = means the volume, as expressed in cubic feet, from the point in the incinerator where the maximum temperature has been reached until the point where the temperature has dropped to $1600^{o}F$.

$Q_C$ = means the combustion gas flow through V, as expressed in actual cubic feet per second, which is measured according to ARB Test Method 2, after adjusting the measured flow rate to the maximum combustion chamber temperature ($T_C$) by using $T_C$ instead of $T_{STD}$ in the ARB Test Method 2 calculation for $Q_C$.

The volumetric flow rate measured at the sampling points must be adjusted to chamber pressures.

Alternative methods may be used if conditions for determining the combustion gas flow rate by Method 2 are unacceptable. The determination shall be equivalent to, and within the guidelines of, ARB Test Method 2 and at the discretion of the Air Pollution Control Officer.

$T_C$ = means the maximum temperature, in degrees Fahrenheit, that has been reached in the incinerator.

302.5 The discharge of emissions from the combustion chamber, is solely through the control equipment, or solely through the incinerator stack if no control equipment is installed.

**303 ASH HANDLING REQUIREMENTS:** No person shall operate a medical waste incinerator unless the bottom ash, fly ash and scrubber residuals are handled and stored in a manner that prevents entrainment into ambient air.

**304 REQUIRED ANCILLARY EQUIPMENT:** No person shall operate a medical waste incinerator unless the following equipment is installed and maintained in an operable condition:

304.1 A continuous data recording system as specified in Section 501.

304.2 Primary and secondary combustion chamber temperature indication.

304.3 Equipment for determining and recording the weight of waste charged to the incinerator.

304.4 An automated ram waste feeder with airlock, for batch fed incinerators, such that no ingress of external air occurs during the process of feeding waste to the primary combustion chamber.

## 400 ADMINISTRATIVE REQUIREMENTS

### 401 COMPLIANCE SCHEDULE:

401.1 No later than 90 days after January 13, 1992, the owner or operator of a medical waste incinerator shall submit to the District Air Pollution Control Officer an application for an authority to construct the equipment necessary to meet the requirements of Section 301, and

401.2 No later than 15 months after January 13, 1992, the owner or operator of a medical waste incinerator shall be in compliance with this regulation.

**402 DETERMINATION OF COMPLIANCE:** For purposes of demonstrating compliance with the emission limits of Section 301 of this Rule the owner or operator of a medical waste incinerator shall conduct the following source tests in the manner specified in Section 502:

402.1 A minimum of two annual source tests for the dioxins stack emissions using ARB Test Method 428, for medical waste incinerators that incinerate more than 25 tons of waste per year . Annual source tests shall be conducted until at least two consecutive tests demonstrate compliance. The high resolution mass spectrometry option of ARB Test Method 428 shall be used.

402.2 One initial source test for stack Dioxin emissions, using ARB Test Method 428, for medical waste incinerators that incinerate 25 tons or less of waste per year. The high resolution mass spectrometry option of ARB Test Method 428 shall be used.

402.3 One initial source test for stack Hydrochloric Acid emissions using ARB Test Method 421.

402.4 One initial source test for stack particulate matter emissions using ARB Test Methods 1 through 5.

Further source testing may be required by the Air Pollution Control Officer in accordance with Rule 507, Provision of Sampling and Testing Facilities.

**403 UPSET NOTIFICATION:** Any violation, malfunction, or upset condition on the incinerator, the air pollution control equipment, or the continuous data recording system shall be reported to the District within 1 hour of occurrence or by 9:00 AM the next business day if the malfunction occurs outside normal business hours and the District does not maintain a radio room or an answering machine.

**404 SHUTDOWN NOTIFICATION:** The owner or operator of a medical waste incinerator who intends to permanently shut down operation of the incinerator shall notify the District of the shutdown date within 90 days after January 13, 1992. The shutdown date shall be no later than six months after January 13, 1992.

**405 OPERATOR CERTIFICATION:** No person shall operate a medical waste incinerator unless each individual who operates or maintains the incinerator obtains either a certificate of training in medical waste incineration issued by the American Society of Mechanical Engineers within nine months of the commencement of the training program, or equivalent training as determined by the Air Pollution Control Officer. Copies of the training certificates for the operators and maintenance engineers shall be submitted to the District and the original certificates shall be available for inspection at the facility with the permit to operate.

## 500 MONITORING AND RECORDS

**501 MONITORING:** The owner or operator of a medical waste incinerator shall maintain a continuous data recording system which provides for each day of operation continuous recording of:

501.1 Primary and secondary combustion chamber temperatures;

501.2 Carbon monoxide emissions;

501.3 Hourly waste charging rates;

501.4 The opacity of stack emissions or other indicator of particulate matter which is approved by the District Air Pollution Control Officer; and

501.5 Key operating parameters of the air pollution control equipment, as specified by the Air Pollution Control Officer.

**502 TEST REQUIREMENTS:**

502.1 Test Plan: At least sixty (60) days prior to the planned conduct of testing, a written test plan (two copies) detailing the test methods and procedures to be used shall be submitted for approval by the Air Pollution Control Officer. The plan shall cite the test methods to be used for the determination of compliance with the emission limitations of this Rule, including any proposed use of alternate test methods. The plan shall provide the proposed procedures for the characterization of the representative waste to be burned during testing.

502.2 Test Performance and Reporting: For purposes of determining compliance with Section 301 of this Rule, the source testing shall be conducted at the stack. Information regarding the composition (moisture content, heating value in British Thermal Units, and amount of the total waste, by weight percent, that is infectious, pathological, hazardous, or radioactive and remaining waste which is paper or cardboard, plastics, glass, wet garbage) and feed rate of the waste and auxiliary fuel charged during the source test shall be provided with the test results. The Air Pollution Control Officer can require additional necessary information regarding the composition of the waste. Source testing shall be conducted at the maximum waste firing capacity ($\pm$ 10 percent) allowed by the air

district permit. A copy of all source test results conducted for purposes of demonstrating compliance with this rule shall be provided to the ARB at the same time that it is provided to the District.

**503 RECORDKEEPING:** Maintenance records for the incinerator, control equipment, and monitoring equipment; and calibration records for the monitoring equipment. Such records shall be retained on-site for a period of 24 months, and made available to the District upon request.